

We Claim:

1 1. A method for programming a configurable integrated circuit, comprising the
2 steps of:

3 programming a plurality of nonvolatile bits in one or more nonvolatile registers,
4 each nonvolatile bit or a combination of nonvolatile bits in the plurality of nonvolatile
5 bits corresponding to an analog function; and

6 generating a configuration on an integrated circuit from programming the plurality
7 of nonvolatile bits in the one or more nonvolatile registers.

1 2. The method of Claim 1 wherein the plurality of nonvolatile bits in the one or
2 more nonvolatile registers comprises E^2 cells.

1 3. The method of Claim 1 wherein in the programming step comprises the step
2 of enabling an analog function by the nonvolatile bit or the combination of nonvolatile
3 bits.

1 4. The method of Claim 3 wherein in the enabling step comprises the step of
2 setting the analog function to a specific value.

1 5. The method of Claim 1 wherein in the programming step comprises changing
2 pin assignments by programming one or more nonvolatile bits.

1 6. The method of Claim 1 wherein the analog function comprises trimming an
2 internal voltage of the integrated circuit.

1 7. The method of Claim 1 further comprising the step of combining a plurality of
2 analog signals to generate a digital output.

1 8. The method of Claim 1 further comprising the step of storing a status of a
2 fault condition of the integrated circuit in the one or more NV registers.

1 9. An integrated circuit, comprising:
2 one or more nonvolatile registers having a plurality of nonvolatile bits, each
3 nonvolatile bit or a combination of nonvolatile bits in the plurality of nonvolatile bits
4 corresponding to programming an analog function; and
5 a circuit configuration in the integrated circuit being generated from programming
6 one or more nonvolatile registers.

1 10. The integrated circuit of Claim 9 further comprising a decoder, coupled
2 between the one or more nonvolatile registers and a circuit configuration, for decoding
3 the plurality of nonvolatile bits for programming analog functions.

1 11. The integrated circuit of Claim 9 wherein the plurality of nonvolatile bits
2 comprises E² cells.

1 12. The integrated circuit of Claim 9 wherein the nonvolatile bit or the
2 combination of nonvolatile bits in the one or more nonvolatile registers enables the
3 analog function.

1 13. The integrated circuit of Claim 12 wherein the nonvolatile bit or the
2 combination of nonvolatile bits in the one or more nonvolatile registers sets a specific
3 value to the enabled analog function.

4 14. The integrated circuit of Claim 9 wherein the nonvolatile bit or the
5 combination of nonvolatile bits in the one or more nonvolatile registers changes pin
6 assignments of the integrated circuit.

1 15. The integrated circuit of Claim 12 where the bit or the combination of
2 nonvolatile bits trims an internal voltage of the enabled analog function.

1 16. The integrated circuit of Claim 9 further comprising a logic gate for
2 combining a plurality of analog signals to generate a digital output.

1 17. A configurable device, comprising:
2 means for programming one or more nonvolatile registers having a plurality of
3 nonvolatile bits, each bit or a combination of bits in the plurality of nonvolatile bits
4 corresponding to an analog function; and
5 means for generating a configuration from programming the plurality of
6 nonvolatile bits.

1 18. The configurable device of Claim 17 wherein the programming means of the
2 one or more nonvolatile registers comprises E^2 cells.

1 19. The configurable device of Claim 17 wherein the programming means
2 comprises enabling the analog function.

1 20. The configurable device of Claim 17 wherein the programming means
2 comprises selecting a specific value of the analog function.